

## **NONSTANDARD EXPIRATIONS PILOT PROGRAM: ANNUAL CBOE PILOT PROGRAM REPORT**

On September 14, 2010, the Commission approved Cboe Exchange, Inc.'s (formerly the Chicago Board Options Exchange, Incorporated) ("Cboe" or "Exchange") proposed rule change to establish a pilot program to list P.M.-settled options on broad-based indexes to expire on (a) any Friday of the month, other than the third Friday-of-the-month ("End of Week Expirations" or "EOWs"), and (b) the last trading day of the month ("End of Month Expirations" or "EOMs"). On January 14, 2016, the Commission approved Cboe's proposed rule change to expand the pilot program to permit P.M.-settled options on broad-based indexes to expire on any Wednesday of the month ("Wednesday Expirations" or "WEDs"), other than Wednesdays that are EOM. Additionally, on August 10, 2016, the Commission approved Cboe's proposed rule change to expand the pilot program to permit P.M.-settled options on broad-based indexes to expire on any Monday of the month ("Monday Expirations" or "MONs") (EOWs, WEDs, and MONs are collectively referred to as "Weekly Expirations"). Under the Nonstandard Expirations Pilot Program ("Program"), Weekly Expirations and EOMs are permitted on any broad-based index that is eligible for regular options trading. Weekly Expirations and EOMs are cash-settled and may have either a European-style or American-style exercise. The Program is currently scheduled to expire on **November 4, 2019**.

Pursuant to the most recent rule change related to the Program,<sup>1</sup> Cboe is required to submit an annual report to the Commission, which addresses the following areas: Analysis of Volume & Open Interest, Monthly Analysis of Weekly Expirations and EOM Trading Patterns, and Provisional Analysis of Index Price Volatility. For purposes of the annual report, Cboe states that EOWs and EOMs were listed for trading under the Program on the following indexes: the Standard & Poor's 500 Index ("S&P 500"); the Standard & Poor's 100 Index ("S&P 100"), and the Russell 2000 Index ("Russell 2000"). Series of EOW and EOM options on the Russell 2000 were listed for trading on January 21, 2016 and January 5, 2016, respectively. Additionally, Cboe states that both WEDs and MONs were listed for trading under the Program on the S&P 500. The first WEDs on the S&P 500 were listed for trading on February 23, 2016, and the first MONs on the S&P 500 were listed for trading on August 15, 2016.

The Exchange notes that in the data provided in the attached Excel spreadsheet (the "Nonstandard Expirations Pilot Program Data Spreadsheet"), the symbol "SPX" refers to third-Friday-of-the-month, A.M.-settled S&P 500 options, the symbol "SPXW" refers to EOW, EOM, WED, and MON expirations on the S&P 500, and the symbol "XSP" refers to expirations based on the Mini SPX Index, which is 1/10<sup>th</sup> the value of the S&P 500. Additionally, the symbol "OEX" refers to expirations on the S&P 100 with an American-style exercise and the symbol "XEO" refers to expirations on the S&P 100 with a European-style exercise. Finally, the symbol "RUT" refers to A.M.-settled options on the Russell 2000 Index with European-style exercise and the symbol "RUTW" refers to P.M.-settled EOW and EOM options on the Russell 2000 Index with European-style exercise.

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<sup>1</sup> See Securities Exchange Act Release No. 80387 (April 6, 2017), 82 FR 17706 (April 12, 2017) (SR-CBOE-2017-026).

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### Analysis of Volume & Open Interest

All data pertaining to the analysis of volume and open interest can be found in the Nonstandard Expirations Pilot Program Data Spreadsheet. Weekly Expirations and EOMs include data during the period January 1, 2021 through December 31, 2021. The relevant tabs related to each option class are identified below.

(1) Monthly volume aggregated for all EOW, EOM, WED, and MON series:

- SPX/SPXW: *see* Tabs **BP1\_2022**, **BP1\_SPX WEDS. 2022** and **BP1\_SPX MONS. 2022**
- XEO: *see* Tab **XEO\_BP1\_2022**
- OEX: *see* Tab **OEX\_BP1\_2022**
- XSP: *see* Tab **XSP\_BP1\_2022**
- RUT/RUTW: *see* Tab **RUT\_BP1\_2022**

(2) Volume in EOW, EOM, WED, and MON series aggregated by expiration date:

- SPX/SPXW: *see* Tabs **BP2\_2022**, **BP2\_SPX WEDS. 2022** and **BP2\_SPX MONS. 2022**
- XEO: *see* Tab **XEO\_BP2\_2022**
- OEX: *see* Tab **OEX\_BP2\_2022**
- XSP: *see* Tab **XSP\_BP2\_2022**
- RUT/RUTW: *see* Tab **RUT\_BP2\_2022**

(3) Month-end open interest aggregated for all EOW, EOM, WED, and MON series:

- SPX/SPXW: *see* Tabs **BP3\_2022**, **BP3\_SPX WEDS. 2022** and **BP3\_SPX MONS. 2022**
- XEO: *see* Tab **XEO\_BP3\_2022**
- OEX: *see* Tab **OEX\_BP3\_2022**
- XSP: *see* Tab **XSP\_BP3\_2022**
- RUT/RUTW: *see* Tab **RUT\_BP3\_2022**

(4) Month-end open interest for EOM, EOW, WED and MON series aggregated by expiration date:

- SPX/SPXW: *see* Tabs **BP4\_2022**, **BP4\_SPX WEDS.2022** and **BP4\_SPX MONS.2022**
- XEO: *see* Tab **XEO\_BP4\_2022**
- OEX: *see* Tab **OEX\_BP4\_2022**
- XSP: *see* Tab **XSP\_BP4\_2022**
- RUT/RUTW: *see* Tab **RUT\_BP4\_2022**

(5) Ratio of monthly aggregate volume in EOW, EOM, WED and MON series to total monthly class volume:

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- SPX/SPXW: *see* Tabs **BP5\_2022**, **BP5\_SPX WEDS. 2022** and **BP5\_SPX MONS. 2022**
- XEO: *see* Tab **XEO\_BP5\_2022**
- OEX: *see* Tab **OEX\_BP5\_2022**
- XSP: *see* Tab **XSP\_BP5\_2022**
- RUT/RUTW: *see* Tab **RUT\_BP5\_2022**

(6) Ratio of month-end open interest to total month-end class open interest for EOW, EOM, WED series and MON series:

- SPX/SPXW: *see* Tabs **BP6\_2022**, **BP6\_SPX WEDS. 2022** and **BP6\_SPX MONS. 2022**
- XEO: *see* Tab **XEO\_BP6\_2022**
- OEX: *see* Tab **OEX\_BP6\_2022**
- XSP: *see* Tab **XSP\_BP6\_2022**
- RUT/RUTW: *see* Tab **RUT\_BP6\_2022**

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**Monthly Analysis of Weekly Expirations and EOM Trading Patterns**

In the annual report, Cboe proposes to identify Weekly Expirations and EOM trading patterns by undertaking a time series analysis of open interest in EOW, EOM, WED and MON series aggregated by expiration date compared to open interest in near-term standard Expiration

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Friday A.M.-settled series in order to determine whether users are shifting positions from standard series to EOW, EOM, WED and MON series.

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Based on its review of EOW, EOM, WED, and MON options on the S&P 500, the Exchange did not observe a sustained migration from standard (i.e., 3<sup>rd</sup> Friday) A.M.-settled SPX options series to S&P 500 EOW, EOM, WED, and MON option series, although open interest in S&P 500 EOW, EOM, WED, and MON has steadily grown. The Exchange believes that the growth in S&P 500 EOW, EOM, WED and MON is due to demand for short-dated options rather than a preference for PM settlement. The Exchange also notes that open interest in EOW and EOM options as a percentage of total SPX option volume is higher following the expiration of standard SPX options due to the large amount of open interest in SPX series with standard 3<sup>rd</sup> Friday expiration dates. The Exchange conducted a time series analysis of EOW and EOM open interest as a percentage of near-term standard options on the S&P 500. The Exchange has observed that open interest in S&P 500 EOW and EOM options tends to increase as EOW and EOM options approach their expiration date, following a similar pattern of rising open interest observed in standard SPX options.

All data pertaining to the monthly analysis of Weekly Expirations and EOM trading patterns is located in the Nonstandard Expirations Pilot Program Data Spreadsheet. Weekly Expirations and EOMs include data during the months of January 2020 through December 2020. The relevant tabs related to each option class are identified below.

- SPX/SPXW: *see* Tabs **BP3\_2022**, **BP3\_SPX WEDS. 2022** and **BP3\_SPX MONS. 2022**
- XEO: *see* Tabs **XEO\_BP3\_2022**
- OEX: *see* Tabs **OEX\_BP3\_2022**
- XSP: *see* Tabs **XSP\_BP3\_2022**
- RUT/RUTW: *see* Tab **RUT\_BP3\_2022**

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### **Provisional Analysis of Index Price Volatility**

For each EOW, EOM, WED and MON expiration that has open interest that exceeds certain minimum thresholds, the annual report will contain the following analysis related to index price changes and, if needed, underlying share trading volume at the close on expiration dates:

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- (1) a comparison of index price changes at the close of trading on a given expiration date with comparable price changes from a control sample. The data will include a calculation of percentage price changes for various time intervals and compare that information to the respective control sample. Raw percentage price change data as well as percentage price change data normalized for prevailing market volatility, as measured by the Cboe Volatility Index ("VIX"), will be provided; and

Cboe will calculate three sets of percentage price changes:

1. Based on the Broad-Based Index price observed at 2:30 p.m. CT and the closing Broad-Based Index price,
2. Based on the Broad-Based Index price observed at 2:40 p.m. CT and the closing Broad-Based Index price, and
3. Based on the Broad-Based Index price observed at 2:55 p.m. CT and the closing Broad-Based Index price

The percentage price changes will be calculated using the following formula:

$$\text{Percentage Price Change} = \frac{P(\text{close}) - P(2:30 \text{ p.m., } 2:40 \text{ p.m. or } 2:55 \text{ p.m. CT})}{P(2:30 \text{ p.m., } 2:40 \text{ p.m. or } 2:55 \text{ p.m. CT})}$$

where: P(\*) is the Broad-Based Index price

- (2) if needed, a calculation of share volume for a sample set of the component securities representing an upper limit on share trading that could be attributable to expiring in-the-money EOW, EOM, WED, and MON expirations. The data, if needed, will include a comparison of the calculated share volume for securities in the sample set to the average daily trading volumes of those securities over a sample period.

The minimum open interest parameters, control sample, time intervals, method for selecting the component securities, and sample periods will be determined by the Exchange and the Commission.

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Observations of the S&P 500 were taken at five minute intervals from 2:30 p.m. to 3:00 p.m. (Chicago time) on EOW and EOM options with Friday expiration days and for Fridays from January 2018 through December 2018 as a control.

The percentage changes in the S&P 500 value from each observation to the close at 3:00 p.m. (Chicago time) were then calculated. In addition, the absolute value of the percentage changes of the observations to the close for both the control were calculated over the study periods. Based on the calculation of the mean and standard deviations of the absolute values of the percentage changes from 2:30 p.m. to 2:55 p.m. to the close over the sampling periods, there was no discernable increase in volatility during the period in which EOW and EOM SPX options were listed. The Exchange notes that the analysis of percentage changes in the S&P 500 value applies

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for XSP EOW and EOM options as well, due to the fact that XSP is 1/10<sup>th</sup> the value of the S&P 500 Index.

A second study was performed where the absolute percentage changes of the S&P 500 values to the close was divided by VIX values to control for potential volatility changes during the two periods. In this study, there was also no discernable increase in volatility in the period in which EOW and EOM SPX options were listed based on the mean and standard deviations for the respective periods.

All data pertaining to the provisional analysis of index price volatility is located in the Nonstandard Expirations Pilot Program Data Spreadsheet. The relevant tabs related to each option class are identified below.

- SPX/SPXW: *see* Tabs **Prov1\_2022**, **Prov1\_2022 (WEDS)** and **Prov1\_2022 (MONS)**
- OEX and XEO: *see* Tab **OEX\_XEO\_Prov1\_2022**
- RUT/RUTW: *see* Tab **RUT\_Prov1\_2022**

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